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| EXAMINER | |
|---|---|
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| ART UNIT | PAPER NUMBER |
|---|---|
| 1723 | |

DATE MAILED: 03/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/772,542 | LEVY, EHUD | |
| | Examiner | Art Unit | |
| | Marianne S. Ocampo | 1723 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *28 November 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-6 and 10-12* is/are pending in the application.

4a) Of the above claim(s) *7-9 and 13-41* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 10-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *7-9 and 13-41* are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Election/Restrictions*

1. This application contains claims 7 – 9 and 13 - 41 drawn to an invention non-elected with traverse in the Response (Paper No./Mail date) filed 4-7-03. ***A complete reply to the final rejection must include cancelation of non-elected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.***

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1 – 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lisenko (US 5,639,550) in view of Libutti et al. (US 5,611,929).

4. With regards to claim 1, Lisenko discloses a filtration media comprising primary (sorbent) particles (16), which may comprise any sorbent media, for example, tin silicate &

titanium silicate, and support particles (18) comprising activated carbon and an organic binder (20) material in the form of thermoplastic binders (such as those disclosed in col. 4, lines 7 - 13), in which the binder takes up about 5 – 25% by weight based on total composition of the mixture/media and binding together the primary particles and the support particles/activated carbon into a rigid porous solid (14), as in fig. 2, and cols. 2 – 6. Lisenko further discloses the quantity of primary particles/sorbent particles (16) and support particles/activated carbon (18) make up the difference and balance of the total composition and is dependent upon desired characteristics of the end product (i.e. composite filtration media 14). In this instance, the balance is between the quantity of primary/sorbent particles (16, which is the lesser one, according to figure 2) and the support /activated carbon particles (18), which takes up the greater amount of the balance of the total composition, as in fig. 2 and col. 5, lines 49 - 58. It is considered obvious to one of ordinary skill in the art that the amount/quantity of support /activated carbon particles (18) could be at least 60% by weight of the total composition or more, and therefore the rest of the total composition is taken by the primary particles (16) which could be at least 15% by weight of the total composition (when the binder particles is about 25% by weight of the total composition/mixture).

Lisenko fails to disclose the particles forming the primary particles/sorbent media being *zirconia* (also known as *zirconium oxide*) particles.

5. Libutti et al. teach different types of sorbent media/adsorbent particles, capable of use in filtration of liquids such as drinking water, wherein the sorbent media comprise zirconia or zirconium oxide particles, as in cols. 3 – 4.

It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the material of construction of the sorbent/primary particles of the filtration media of Lisenko, by substituting it with the sorbent media/material (zirconia/zirconium oxide particles) taught by Libutti et al., in order to provide alternative materials of construction for the primary particles, which is capable of removing other unwanted constituents (such as arsenic and/or chloroform) from a liquid such as drinking water.

6. Regarding claims 2 – 3, Lisenko, as modified by Libutti et al., have taught the limitations of claim 1 above. Lisenko further discloses the quantity of the support particles (18) (which is the greater among the primary and support particles in terms of taking up the balance of the total composition, being that the binder material/particles have already taken up to 25% by weight of the total composition/mixture, as in col. 5, lines 50 – 59), in this instance, comprised of activated carbon particles, may take up at least 60% or more, which would include about 70% by weight of the total composition/mixture, as in figure 2 and col. 5 (claim 2). Furthermore, since the remainder (i.e. 30% by weight of the total composition) is between the binder material/particles (20) and the primary particles (16), in which the binder particles (20) could have a quantity of at least 5% up to 25% by weight, therefore, the primary particles (which has been modified to be zirconia, resulting from the combination with Libutti et al. in claim 1 above) could have at least 5% up to 25% by weight of the total composition/mixture. In other words, if the binder material/particles (20) have been predetermined by the maker of the

filtration media to be about 20% by weight of the total composition/mixture, then the primary particles (16) would have about 10% by weight of the total composition (claim 3).

It is considered obvious to one of ordinary skill in the art the exact amounts/quantity of the primary particles and support/activated carbon particles would be dependent upon the desired characteristics of the end product, which in this instance, the user may want more primary particles (zirconia) in the composite filtration media (14), thereby increasing the capacity for removing arsenic and chloroform from drinking water.

7. Claims 4 - 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poirier (WO 01/23819) in view of Lisenko (US 5,639,550) and Libutti et al. (US 5,611,929).

8. With respect to claim 4, Poirier discloses a filtration media for a small filter (12, 10) wherein the media (36, in this instance, may be a combination of sorbent media including activated carbon and other active particles) occupying a space less than 20 cubic inches, in particular, a space of less than about 6 cubic inches, wherein the filtration media (36) is composed of activated carbon particles and other active particles such as charge-modified webs, etc., capable of removing unwanted constituents from unfiltered (drinking) water supply, as in pages 13 – 14 and figures 1 – 2.

Poirier fails to disclose the filtration media composing of 15% - 25% zirconia particles, 45% - 60% activated carbon particles and the balance being an organic binder material which

binds together the zirconia and activated carbon particles together into a rigid porous solid, the percentages based on total composition.

9. Lisenko teaches a filtration media comprising primary (sorbent) particles (16), which may comprise any sorbent media, for example, tin silicate & titanium silicate, and support particles (18) comprising activated carbon and an organic binder (20) material in the form of thermoplastic binders (such as those disclosed in col. 4, lines 7 - 13), in which the binder takes up about 5 – 25% by weight based on total composition of the mixture/media and binding together the primary particles and the support particles/activated carbon into a rigid porous solid (14), as in fig. 2, and cols. 2 – 6. Lisenko further discloses the quantity of primary particles/sorbent particles (16) and support particles/activated carbon (18) make up the difference and balance of the total composition and is dependent upon desired characteristics of the end product (i.e. composite filtration media 14). In this instance, the balance is between the quantity of primary/sorbent particles (16, which is the lesser one, according to figure 2) and the support /activated carbon particles (18), which takes up the greater amount of the balance of the total composition, as in fig. 2 and col. 5, lines 49 - 58. It is considered obvious to one of ordinary skill in the art that the amount/quantity of support/activated carbon particles (18) could be at least about 45% - 60% by weight of the total composition or more, and therefore, the rest of the total composition is taken by the primary particles (16) which could be at least 15% - 30% by weight of the total composition (when the binder particles is about 25% by weight of the total composition/mixture).

It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the filtration media of Poirier by adding the embodiment taught by Lisenko, in order to provide an alternative and improved filtration media for the small filter/apparatus of Poirier, which is not only capable of removing sediment, chlorine and undesirable smell/odor and tastes from the water, but also capable of removing harmful constituents (such as arsenic, lead, etc). from the water, thereby providing a cleaner and safer drinking water/water supply for consumption (see cols. 2 – 3 of Lisenko). Furthermore, the rigid solid configuration formed by the filtration media of Lisenko would make the replacement and changing of filtration media in the small filter of Poirier an easier and quicker operation.

10. Poirier, as modified by Lisenko, fails to disclose the particles forming the primary particles/sorbent media being *zirconia* (also known as *zirconium oxide*) particles.

11. Libutti et al. teach different types of sorbent media/adsorbent particles, capable of use in filtration of liquids such as drinking water, wherein the sorbent media comprise zirconia or zirconium oxide particles, as in cols. 3 – 4.

It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the material of construction of the sorbent/primary/active particles forming the filtration media of Poirier, as modified by Lisenko, by substituting it with the sorbent media/active material (in the form of zirconia/zirconium oxide particles) taught by Libutti et al., in order to provide alternative materials of construction for the primary particles, which is just as effective

and capable of removing unwanted constituents (such as arsenic and/or chloroform) from a liquid such as drinking water.

12. With regards to claims 5 – 6, Poirier, as modified by Lisenko and Libutti et al., have taught the limitations of claim 4 above. Lisenko further discloses the quantity of the support particles (18) (which is the greater among the primary and support particles in terms of taking up the balance of the total composition, being that the binder material/particles have already taken up to 25% by weight of the total composition/mixture, as in col. 5, lines 50 – 59), in this instance, comprised of activated carbon particles, may take up at least about 60% or more, as in figure 2 and col. 5. Since the remainder (i.e. 40% by weight of the total composition) is between the binder material/particles (20) and the primary particles (16), in which the binder particles (20) could have a quantity of at least 5% up to 25% by weight, therefore, the primary particles (which has been modified to be zirconia, resulting from the combination with Libutti et al. in claim 4 above) could have at least 15% up to 35% by weight of the total composition/mixture. In other words, if the binder material/particles (20) have been predetermined by the maker of the filtration media to be about 15% by weight of the total composition/mixture, then the primary particles (16) would have about 25% by weight of the total composition (claim 6), or the binder material/particles (20) have been predetermined by the maker of the filtration media to be about 20% by weight of the total composition/mixture, then the primary particles (16) would have about 20% by weight of the total composition (claim 5).

It is considered obvious to one of ordinary skill in the art the exact amounts/quantity of the primary particles and support/activated carbon particles would be dependent upon the desired characteristics of the end product, which in this instance, the user may want more primary particles (zirconia) in the composite filtration media (14), thereby increasing the capacity for removing arsenic and chloroform from drinking water.

13. Claims 10 - 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pedersen (US 5,118,655) in view of Lisenko (US 5,639,550) and Libutti et al. (US 5,611,929).

14. Concerning claim 10, Pedersen discloses a bed of filtration media for purification of water (including drinking water), comprising 5% - 25% by weight bone charcoal of which 25% - 125% by weight of the bone charcoal is activated alumina, about 25% - 85% by weight activated carbon particles, about 5% - 15% by weight diatomite and 0 – 7% by weight catalytic chlorine removal media (KDF), all percentages based on total composition, as in cols. 3 – 7.

Pedersen fails to disclose the filtration media comprising 4 – 15% by weight zirconia particles and including a binder material which bind together the zirconia, alumina and activated carbon particles to form a rigid porous solid.

15. Lisenko teaches a filtration media comprising primary (sorbent) particles (16), which may comprise any sorbent media, for example, tin silicate & titanium silicate, and support particles (18) comprising activated carbon and an organic binder (20) material in the form of thermoplastic binders (such as those disclosed in col. 4, lines 7 - 13), in which the binder takes

up about 5 – 25% by weight based on total composition of the mixture/media and binding together the primary particles and the support particles/activated carbon into a rigid porous solid (14), as in fig. 2, and cols. 2 – 6. Lisenko further discloses the quantity of primary particles/sorbent particles (16) and support particles/activated carbon (18) make up the difference and balance of the total composition and is dependent upon desired characteristics of the end product (i.e. composite filtration media 14). In this instance, the balance is between the quantity of primary/sorbent particles (16, which is the lesser one, according to figure 2) and the support /activated carbon particles (18), which takes up the greater amount of the balance of the total composition, as in fig. 2 and col. 5, lines 49 - 58. It is considered obvious to one of ordinary skill in the art that the amount/quantity of support/activated carbon particles (18) could be at least about 65% by weight of the total composition or more, and therefore, the rest of the total composition is taken by the primary particles (16) which could be at least 10% - 30% by weight of the total composition (when the binder particles is about 5% - 25% by weight of the total composition/mixture).

It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the filtration media of Pedersen by adding the embodiment taught by Lisenko, in order to provide an alternative form and material of construction for the filtration media capable of removing other harmful constituents (such as arsenic, lead, etc). from the water, thereby providing a cleaner and safer drinking water/water supply for consumption (see cols. 2 – 3 of Lisenko). Furthermore, the rigid solid configuration formed by the filtration media of Lisenko

would make the replacement and changing of filtration media in the filter housing (which would housed or cage the bed of filtration media) of Pedersen an easier and quicker operation.

16. Note that the examiner has considered as a result of the combination of the teachings of Pedersen and Lisenko, that the primary particles could compose not only of one active particles but two or more combinations of sorbent media (such as zirconia and alumina (which has already been disclosed by Pedersen). Pedersen, as modified by Lisenko, fails to disclose the particles forming the primary particles/sorbent media including *zirconia* (also known as *zirconium oxide*) particles.

17. Libutti et al. teach different types of sorbent media/adsorbent particles, capable of use in filtration of liquids such as drinking water, wherein the sorbent media including zirconia or zirconium oxide particles, as in cols. 3 – 4.

It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the material of construction of the sorbent/primary/active particles forming the filtration media of Pedersen, as modified by Lisenko, by including and substituting at least some and if not all of the sorbent media/active material (in the form of zirconia/zirconium oxide particles) taught by Libutti et al., in order to provide alternative materials of construction for the primary (sorbent) particles, which is just as effective and capable of removing harmful unwanted constituents (such as arsenic and/or chloroform) from a liquid such as drinking water.

18. With regards to claims 11 – 12, Pedersen, as modified by Lisenko and Libutti et al., have taught the limitations of claim 10 above. Lisenko further discloses the quantity of the

primary particles (16), which has been modified to be zirconia, resulting from the combination with Libutti et al. in claim 10 above), could be modified to any % by weight, depending upon the desired properties/characteristic of the end product (composite filtration media 14), as in col. 5. It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the % by weight of the primary/zirconia particles to be that of about 10% by weight of the total composition (claim 11), in order to increase the ability of the filtration media to remove arsenic and chloroform from the water, and/or further modify the primary particles to have at least about 10% by weight of total composition to be that of alumina (claim 12), in addition to having zirconia particles, as taught by Pedersen, in order to increase the ability of the filtration media to remove organic constituents/organic pesticides which have been dissolved or incorporated into the (drinking) water supply (see cols. 1 – 7 of Pedersen).

***Response to Amendments and Arguments***

19. Applicant's arguments with respect to claims 1 – 6 and 10 - 12 have been considered but are moot in view of the new grounds of rejection based on newly found art, namely Lisenko (US 550), Libutti et al. (US 929) and WO Publication 01/23819 to Poirier.

20. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Conclusion***

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6,337,015 B1 (Poirier).

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne S. Ocampo whose telephone number is (571) 272-1144. The examiner can normally be reached on Mondays to Fridays from 8:30 A.M. to 4:30 P.M..

23. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker can be reached on (571) 272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

24. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M.S.O.

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